

Appln. No. 10/748,814
Amendment dated December 14, 2005
Reply to Office Action of September 14, 2005

REMARKS/ARGUMENTS

Reconsideration of the present application, as amended, is respectfully requested.

The September 14, 2005 Final Office Action and the Examiner's comments have been carefully considered. In response, claims are cancelled and amended, and remarks are set forth below in a sincere effort to place the present application in form for allowance. The amendments are supported by the application as originally filed. Therefore, no new matter is added.

Inasmuch as the present Amendment raises no new issues for consideration, and, in any event, places the present application in condition for allowance or in better condition for consideration on appeal, its entry under the provisions of 37 CFR 1.116 is respectfully requested.

OBJECTION TO THE DRAWINGS

In the Office Action, the drawings are objected to under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims. In response, claim 5 is cancelled, thereby rendering the objection to the drawings as not showing the feature recited in claim 5 moot.

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PRIOR ART REJECTIONS

In the Office Action claims 1 and 4-7 are rejected under 35 USC 103 as being unpatentable over USP 4,096,550 (Boller et al.) in view of USP 5,883,684 (Millikan et al.). Claims 8 and 9 are rejected under 35 USC 103 as being unpatentable over Boller et al. in view of Millikan et al., and further in view of USP 6,825,894 (Aoyagi et al.).

In response, claim 5 is cancelled and features from claim 5 are incorporated into claim 1 in order to more clearly define the present claimed invention as defined by claim 1 over the cited references.

The amendments to claim 1 do not raise new issues that would require further consideration and/or search since the limitations added to claim 1 were previously presented in claim 5.

A feature of the present claimed invention as defined by amended claim 1 is that the dot light source has a flat light emitting surface, and the dot light source is fixed to a retaining section in a state where the flat light emitting surface abuts on a light entrance end surface, by an adhesive agent disposed at a portion other than the flat light emitting surface.

According to the claimed structure, since the flat light emitting surface directly faces the light entrance end surface

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and the adhesive agent does not exist between the flat light emitting surface of the light entrance end surface, the emitted light can be efficiently used with no loss, and the intensity of the irradiated light can thus be improved. Furthermore, the set position of the dot light source can be stably retained. Consequently, even if the light guiding plate repeatedly expands or shrinks due to repetitive heating and cooling caused by changes in the atmospheric temperature and turning on/off of the dot light source, the relative position of the dot light source to the light guiding plate is not changed. Therefore, irradiation light having a uniform intensity distribution and a sufficient average intensity can be stably obtained for a long time by a surface-shaped light irradiation device employing a dot light source.

USP 4,096,550 (Boller et al.) discloses an illuminating arrangement in which a recess 13 is provided at the end of a transparent plate 1, and a light source 2 constituted by a microlamp is inserted into recess 13. More specifically, Boiler et al. teach providing a recess 13 at the end of a transparent plate 1, and inserting a light source 2 into this recess 13. However, this light source 2 is a microlamp, and does not have a flat surface, which emits light.

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Boller et al. do not disclose, teach or suggest a light source having a flat light emitting surface, or a feature that the light source is fixed by an adhesive agent disposed at a portion other than the light emitting surface.

USP 5,883,884 (Millikan et al.) discloses a backlight assembly 31 in which an LED 32 is disposed at edges 34 of a light guide 36, and the LED 32 is adhered to the edges 34 by an adhesive 60. However, light guide 36 does not include a retaining section for retaining the LED 32. Furthermore, as regards the fixing structure for the LED 32, the adhesive 60 also exists between the surface of the LED 32 from which light of the LED 32 is emitted and the edges 34.

Millikan et al. do not, however, teach forming a retaining section on the light guide 36 or fixing the LED 32 to the retaining section by an adhesive disposed at a portion other than a light emitting surface.

USP 6,825,894 (Aoyagi et al.) discloses that LEDs 8 are inserted into through-holes 7 provided in a printed circuit board 5. The LEDs 8 are illumination elements made to face the side edge 4A of a light guide 4, and each component of a liquid crystal display is fixed by double-sided adhesive tape. Aoyagi et al. do not, however, teach forming a retaining section for retaining the LEDs 8 at the side edge 4A of the light guide 4, or

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fixing the light source with an adhesive agent disposed at a portion other than the light emitting surface of the light source.

As described above, Boller et al. do not disclose a dot light source having a flat light emitting surface or an adhesion structure for such a dot light source, and Millikan et al. do not teach fixing a dot light source by an adhesive agent disposed at a portion other than the light emitting surface. Therefore, it would not have been obvious to one of ordinary skill in the art to achieve the invention of claim 1 of the present application by applying Millikan et al. to Boller et al.

In addition, according to the invention defined by amended claim 1, it is apparent that the invention can obtain effects and functions that the emitted light can be used efficiently with relatively no loss to thereby enable the intensity of the irradiation light to be improved, and such that the set position of the dot light source can be stably retained.

Thus, the invention of claim 1 would not have been obvious to one of ordinary skill in the art at the time the invention was made in view of the teachings of Boller et al. and Milliken et al.

None of the other references of record close the gap between the present claimed invention as defined by claim 1 and Boller et

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al. taken either alone or in combination with Millikan et al. and Aoyagi et al. That is, none of the references of record disclose that a dot light source has a flat light emitting surface, and the dot light source is fixed to a retaining section in a state that the flat light emitting surface abuts on a light entrance end surface, by an adhesive agent disposed at a portion other than the flat light emitting surface.

In view of the foregoing, claim 1 is patentable over the cited references under 35 USC 102 as well as 35 USC 103.

Claims 4 and 6-9 are either directly or indirectly dependent on claim 1 and are patentable over the cited references in view of their dependence on claim 1 and because the references do not disclose, teach or suggest each of the limitations set forth in claims 4 and 6-9.

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Entry of this Amendment under the provisions of 37 CFR 1.116, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner disagrees with any of the foregoing, the Examiner is respectfully requested to point out where there is support for a contrary view.

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If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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